

**Remarks**

*A. Status of the Claims*

Claims 1-13 and 15-31 were pending. Claims 4 and 5 have been canceled. Claims 1-3, 6-13, and 15-31 therefore remain pending. Independent claims 1, 9, and 18 have been amended in accordance with comments within the Office Action. The Examiner has indicated that claims 27-31 are allowed.

*B. Language Clarification*

Some pending claims, including allowed claim 27, recited “inhomogeneous AC *signals*.” Although Applicants believe the meaning of this phrase is definite in the context of the invention and in view of knowledge of those of ordinary skill in the art, the phrase has nevertheless been clarified. As confirmed by reference to the specification at page 18, line 26, it is more accurate to use the word inhomogeneous when referring to resulting electrical *fields* rather than corresponding, applied electrical *signals*. The amended claims reflect this clarification. Applicants respectfully submit that the non-narrowing clarification does not affect the patentability of any claim, including claims 27-31 that have already been allowed. Instead, the clarification ensures that “inhomogeneous” is used according to its normal meaning in this field of study.

*C. Section 112 Rejections*

Claims 1-13 and 15-26 stand rejected under 35 U.S.C. §112, 2nd paragraph. Although Applicants respectfully contend that the claims comply with Section 112, the rejected independent claims have nevertheless been amended in accordance with the Examiner’s

suggestion. Claims 1, 9, and 18 now recite means-plus-function language to clarify that the claimed subject matter includes structure for driving one or more electrodes as claimed. Please note that the specification identifies an example, appropriate “means,” *e.g.*, at page 37 line 21 as a control circuit that provides electrical signals.

Applicants appreciate the Examiner’s suggestion for advancing prosecution and respectfully request removal of this rejection.

*D. Section 102 Rejections*

Claims 1-3, 7, 9-11, and 16 stand rejected under 35 U.S.C. §102 in view of the article entitled, “Dielectrophoretic liquid actuation and nanodroplet formation” by Jones *et al.* in the Journal of Applied Physics, 2001 (“Jones”). Applicants respectfully disagree with bases for these rejections and present the following points in response, for the Examiner’s consideration.

*1. Independent Claim 1 and Its Dependent Claims Are Allowable*

Independent claim 1 has been amended to incorporate subject matter of claims 4 and 5, which are indicated as being allowable. Amended claim 1 is therefore in condition for allowance as well as its dependent claims.

*2. Independent Claim 18 and Its Dependent Claims Are Allowable*

The Examiner indicates that overcoming the present Section 112 rejection would render claim 18 allowable. *See* Office Action, pages 9-10 at ¶12. Independent claim 18 has been amended to overcome the Section 112 rejection, as described above, and is therefore in condition for allowance along with its dependent claims.

3. *Independent Claim 9 and Its Dependent Claims Are Allowable*

Independent claim 9 requires “a hydrophobic patch adjacent at least one of the electrodes” and that patch is “configured to inhibit fluid flow from the inlet fluid pathway to the outlet fluid pathway in the absence of the electrical signals.” Jones does not disclose or suggest such features.

The Office Action alleges that the hydrophobic patch limitation is “implied” in view of Jones’ statement at page 1445 that a flow structure drains rapidly when a voltage is removed. *See* Office Action, page 4 (also citing Figure 5 of Jones for support). Applicants respectfully disagree with the basis of this rejection and ask the Examiner to reconsider. Earlier on the same page, Jones explains why flow structures drain rapidly, and the reason does not concern a hydrophobic patch: “When voltage is turned off, the DEP force stabilizing the liquid in the flow structure is removed and *the capillary jet instability pinches off the water.*” Jones, page 1445, spanning columns 1-2 (emphasis added). Accordingly, Applicants believe that there is no factual basis for implying the presence of a hydrophobic patch.

Additionally, as the Examiner acknowledges, the substrate of Jones is coated with the same material—polyimide. *See* Office Action, pages 10-11. This implies that a hydrophobic patch is *absent*, especially to the extent that a hydrophobic patch would normally entail a patch of material *differing from that of surrounding areas* in terms of hydrophobic characteristics. Even if Jones implied the presence of a patch (which it does not), an implication does not satisfy the legal requirements for establishing anticipation. Even under a theory of anticipation by inherency, it must be shown that a reference *necessarily* includes a particular feature. *See, e.g.,*

MPEP §2112 (“The fact that a certain result of characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.”) (emphasis in original). Finally, because of Jones’ silence regarding a suggestion or motivation to modify its surface to include a hydrophobic patch as recited in the claims, an obviousness rejection would also be unwarranted and would, instead, constitute impermissible hindsight-reconstruction. *See, e.g., W.L. Gore Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983) (“To imbue one of ordinary skill in the art with knowledge of the invention in suit, where no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.”).

For at least these reasons, Applicants respectfully submit that amended independent claim 9 and its dependent claims are allowable and ask the Examiner to reconsider the current rejection.

*E. Section 103 Rejections*

Various dependent claims stand rejected under 35 U.S.C. §103 primarily in view of Jones and in combination with the secondary references noted in the Office Action. *See* Office Action, pages 5-9. Applicants respectfully disagree with the bases for these rejections. The rejected dependent claims are allowable for at least the reasons discussed above with respect to the independent claims. Applicants do not acquiesce in the Examiner’s statements regarding the dependent claims and reserve the right to point out the additional, independently-patentable nature of those claims if the need arises.

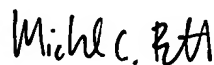
*F. Allowable Subject Matter*

Applicants appreciate the Examiner's indication of allowable subject matter at pages 9-12 of the Office Action. To the extent that any reasons for allowable subject matter state or suggest that patentability is based on features absent from the literal claim language, Applicants respectfully disagree. The claims are believed to be allowable because all requirements of patentability are met and none of the art discloses, teaches, or suggests the explicit elements recited within the claims.

*G. Conclusion*

Applicants believe that this submission fully responds to all outstanding matters for this application. Should the Examiner have any questions regarding this case, please call the undersigned attorney at 512-536-3018.

Respectfully submitted,



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